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**PROJECT NO. 52373**

<b>REVIEW OF WHOLESALE</b>	<b>§</b>	<b>PUBLIC UTILITY COMMISSION</b>
<b>ELECTRIC MARKET DESIGN</b>	<b>§</b>	<b>OF TEXAS</b>

**PROJECT NO. 52268**

<b>CALENDAR YEAR 2021 – WORKSHOP</b>	<b>§</b>	<b>PUBLIC UTILITY COMMISSION</b>
<b>AGENDA ITEMS WITHOUT AN</b>	<b>§</b>	
<b>ASSOCIATED CONTROL NUMBER</b>	<b>§</b>	<b>OF TEXAS</b>
	<b>§</b>	

**COMMENTS OF  
ENERGY INNOVATION: POLICY AND TECHNOLOGY LLC**

COMES NOW Energy Innovation: Policy and Technology LLC (EI) and files these Comments in response to the Commission’s Questions for Comment filed in this proceeding on August 2, 2021.

**Executive Summary**

Don’t Mess with Texas! EI appreciates that in the wake of the tragic and costly events of February 2021 and tight supply conditions in the summer of 2021, Texas and the Commission are at an inflection point. Something must be done to make sure that the Texas grid will not badly fail its citizens again. In seeking solutions, though, the Commission first should seek to do no harm and avoid undermining what is probably one of the best wholesale electricity market designs in the world. Crude fixes could end up doing more harm than good, hampering investment, and reducing future reliability.

Redesign efforts should focus on incentivizing electricity providers to secure adequate supply and be done in a principles-based approach:

- The wholesale electric market design should be *technology neutral* and provide equal access in a manner that is as transparent and liquid as possible. The more diverse the participation, the better markets will function.

- Participants should trade in *only one underlying commodity*, the delivered MWh of electricity, and all other markets (formal or informal) should be for instruments based on that commodity.
- Participations in all longer-duration markets should be *voluntary*. Mandatory instruments, like capacity obligations, segment the market and interfere with the proper functioning of price formation, trade between parties and efficient incentives for investment.

The Commission can improve on the current market design by:

- Focusing on electricity provider obligations and prudence requirements.
- Expanding market participation with new transmission and better demand-side integration.
- Creating supportive context for markets with improved energy efficiency measures, better or expanded ancillary services.

Principles-based tuning of the wholesale electricity markets provides the best path for securing future energy supply without disrupting one of the best performing markets that exists today.

### **Introduction**

Energy Innovation: Policy and Technology LLC (EI) is a nonpartisan energy and environmental policy firm. We deliver high-quality research and original analysis to policymakers to help them make informed choices on energy policy. We focus on what matters and what works. One focus of our research is on wholesale electric market design in North America and elsewhere across the globe, with particular emphasis on designs that can facilitate the on-going major transition happening in the electric technology landscape with best results for affordability, reliability, and relevant local policy priorities. As an independent non-partisan voice with no financial stake in the outcomes of market reform, we appreciate the opportunity to provide our views regarding the Commission's review of wholesale electric market design.

## **Policy Context**

The February 2021 winter storm in Texas, with an estimated 700 deaths and many more left in the cold with no power, was potentially the state’s deadliest disaster in over a century. Such climate-related disasters are guaranteed to happen again, but the tragic fallout need not be repeated. The right policy and regulatory approach can address market failures that led to this suffering and enable a resilient grid, tempering the frequency of such events and protecting people from those that still occur. The Commission has a clear mandate to develop an appropriate and commensurate regulatory response. The question for this proceeding regards the role of market design in this response.

To create an appropriate response, it is important to understand what role the market design has had in the February disaster and some of the close calls in spring and summer supply. Recent research<sup>1</sup> from Energy Innovation looked at lessons and solutions for policymakers throughout the United States from the Texas experience, which falls under the rubric of “high-impact, common-mode events” that are becoming more common and are revealing power grid vulnerabilities that threaten every state’s residents. In these events, a common mode like cold weather affects seemingly independent system components such as natural gas wells and residential water pipes, compounding the impact of any one piece failing.

During the Big Freeze, the electricity market failed in two major ways: it did not deliver on demand for more than three days and it produced (“printed”) huge prices for a period of more than a hundred hours. The EI report found that during a period of more than 100 hours—from 10:00 p.m. on February 14 to 8:00 p.m. on February 19—in which most of the price spikes occurred, the total incremental bill to ERCOT customers from energy purchases and ancillary services reached an

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<sup>1</sup> “Lessons from the Texas Big Freeze.” Eric Gimon, Senior Fellow, Energy Innovation, May 2021. Accessed at <https://energyinnovation.org/wp-content/uploads/2021/05/Lessons-from-the-Texas-Big-Freeze.pdf>

unimaginable \$52.6 billion. This was enough to raise the lagging ten-year average cost of electricity by \$10/MWh. There was clearly an abundance of revenue available to electricity suppliers that did perform well in the crisis – with hindsight, much more than enough to have justified extra winterization capital investment. Yet, there was still insufficient prospective investment in the expectation of increased energy revenue that might be available during such a crisis. The clear conclusion is that the failure in the market, to the extent that the crisis can be blamed on the markets, lies not in a problem with the interplay of day-ahead and real-time spot markets (the theme of some of the questions in this docket) but rather in a disconnect between short-term spot market price signals and long-term investment.

This disconnect is surprising because the ERCOT market is a leading exemplar of how to design an electricity market that drives efficient investment in affordable and reliable energy. Still, no market design is perfect, and there is always room for improvement. Before examining specific failures in the path from spot prices to capital investment, however, it is useful to summarize what still works well and should not be unintentionally disrupted while aiming for a better market design.

### **Principles behind the strength of the ERCOT market and what happened**

One striking feature of the ERCOT market is the rich diversity of wholesalers and financial players that operate as a layer between suppliers and consumers. This rich ecosystem of middlemen and aggregators fosters technical and business innovation in ways that have made Texas a leading market for electricity infrastructure investments of all kinds. The success of the Texas model rests on competition and an energy-only market with a simple premise: participants should be rewarded for ultimately acting in line with the real-time needs of balancing supply and demand. Innovations

like the Operating Reserve Demand Curve (ORDC) are in line with this tradition of granular incentives.

A recent paper<sup>2</sup> on future markets design from EI stressed three key principles for a successful wholesale electricity market design:

- The wholesale electric market design should be technology neutral and provide equal access in a manner that is as transparent and liquid as possible. The more diverse the participation, the better markets will function.
- Participants should trade in only one underlying commodity, the delivered MWh of electricity, and all other markets (formal or informal) should be for instruments based on that commodity.
- Participation in all longer-duration markets should be voluntary. Mandatory instruments, like capacity obligations, segment the market and interfere with the proper functioning of price formation, trade between parties, and efficient incentives for investment.

The current ERCOT market design works very much in line with these principles. This explains why the suppliers and consumers of electricity have managed to find so many productive ways to trade with each other via diverse contract types and intermediaries.

The February 2021 crisis uncovered some serious weakness in the ERCOT grid, affecting all market participants. Looked at from the perspective of electricity providers, competitive retailers and other load-serving entities, whose customers suffered, three key things happened during the crisis: (1) A rapid reduction in available supply due to freezing weather made prices spike, (2) the cold created surging demand from consumers, and eventually (3) supply to many customers was

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<sup>2</sup> “Let’s Get Organized! Long-Term Market Design for a High Penetration Grid.” Eric Gimon, Ph.D. Senior Fellow Energy Innovation, LLC. December 2020. Accessed at <https://documentcloud.adobe.com/link/review?uri=urn:aaid:scds:US:0b51e7d4-95ef-46be-8c9b-f24eaf0fa183#pageNum=1>

curtailed. The latter allowed electricity providers entities to avoid paying high prices but was clearly a disaster for customers. In any case, apart from failing in their fundamental mission, serving customers power, many electricity providers were squeezed between rising costs and rising demand. This created tremendous financial hardship and many bankruptcies.

### **Electricity providers are a key leverage point for reform**

In retrospect, a prudent electricity provider could have planned for the winter storm in two ways. First, they could have entered into long-term financial contracts that would cover not just regular fluctuations in demand but also big surges (100-200% extra) in a winter storm. Plenty of electricity providers hedged against some increased demand, but not to that extent. Second, they could have invested in reducing load in crisis through customer engagement, rate-design, or financing energy efficiency and demand response at customer premises. Neither of these measures would have directly prevented customer rolling outages when the whole grid was facing crisis, but they would have at least reduced the severity and size of the outages, cushioned electricity providers from financial duress and even potentially allowed them to compensate some customer losses (it seems unjust that curtailing a customer means that the provider avoids paying for spot power at high market rates, but the customer doesn't share in those involuntary savings). Furthermore, local energy investments such as winterization for energy efficiency or distributed energy resources would have blunted the direct impact of outages by increasing the survivability of homes. Most important, though, in aggregate, better prepared retailers could have completely avoided the crisis by incentivizing more supplier resilience and mitigating the surge in demand. Because they represent such a strong point of leverage and are very well placed to access a diversity of resiliency solutions, retailers are the right starting point for market reform.

### **Incentives for electricity providers**

Unfortunately, being a prudent electricity provider can be challenging in a competitive market. Contracts that provide extra electricity in crisis conditions are an extra expense that can be hard to pass on to consumers in the face of more short-term focused competitors. Investing in customer premises is hard to justify when a competitor will benefit instead if a consumer switches provider. One solution is to mandate prudency standards and performance penalties so that risky behavior in one provider doesn't negatively affect others – similar to basic insurance requirements on drivers. There are plenty of real-world examples of such measures in countries such as France, Germany, and Australia<sup>3</sup>. Prudency standards and performance penalties can work well within the market principles above – with an ERCOT-style energy-only market, participants have most of the data they need to evaluate their exposure and trade liability in parallel markets. With more stringent standards and penalties, the onus on reliability starts with providers, but through the sophisticated and rich network of intermediaries that exist in Texas, it quickly spreads to participants who can best manage the risk.

Any measure to stimulate investment over and beyond the status quo so that ERCOT customers are better served in the next crisis will eventually appear as an increase in their bills. Working at the provider level allows parties closest to the impacts of supply risk to manage it in the most flexible way, hopefully reducing cost to consumers and empowering them to be part of the solution. A principles-based market reform is the fastest route to innovation and investment to further grid resiliency in Texas.

Further measures that the Commission could support that would improve the market and help lower exposure to high impact-common mode events include new transmission and better demand-

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<sup>3</sup> See, for example, the Australian government's fact sheet on their "Retailer Reliability Obligation" at <https://www.energy.gov.au/publications/retailer-reliability-obligation-factsheet>



side integration into the market. The research firm Vibrant Clean Energy recently<sup>4</sup> provided good evidence of the value that DC transmission links with neighboring balancing areas would provide enormous value during a crisis event like we saw in February 2021. There is also lots of room for better demand-side solutions which we will cover in the answer to Commission questions below.

- 1. What specific changes, if any, should be made to the Operating Reserve Demand Curve (ORDC) to drive investment in existing and new dispatchable generation? Please consider ORDC applying only to generators who commit in the day-ahead market (DAM). Should that amount of ORDC-based dispatchability be adjusted to specific seasonal reliability needs?**

The ORDC is working well for driving investment in existing and new dispatchable generation. ERCOT forecasts show increasing planning reserve margins and many projects in queue. ORDC applying only to generators who commit in the day-ahead is a bad idea. It creates different pricing for different types of resource, creates obligations in a voluntary market and reduces liquidity and transparency. Day-ahead markets are a risk management tool which have very little to do with dispatchability. If ERCOT anticipates a need for dispatchable resources in the following day, the Reliability Unit Commitment (RUC) gives them a means to address the issue. Capacity shortfalls during the February 2021 storm had *nothing to do* with whether or not units committed in the day-ahead market. This type of poorly motivated market change runs against the principles we outlined above and will only throw the markets into chaos, potentially derailing investments and reducing future reliability.

- 2. Should ERCOT require all generation resources to offer a minimum commitment in the day-ahead market as a precondition for participating in the energy market?**
  - a. If so, how should that minimum commitment be determined?**
  - b. How should that commitment be enforced?**

ERCOT should NOT require all generation resources to offer a minimum commitment in the day ahead market as a precondition for participating in energy markets. That is not at all the function

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<sup>4</sup> See “ERCOT Winter Storm Uri, Blackout Analysis (February, 2021)” by Vibrant Clean Energy accessed at <https://www.vibrantcleanenergy.com/wp-content/uploads/2021/03/VCE-ERCOT-StormUri.pdf>

of the day-ahead energy market and would be very disruptive to the smooth functioning of the market and to current contracts.

- 3. What new ancillary service products or reliability services or changes to existing ancillary service products or reliability services should be developed or made to ensure reliability under a variety of extreme conditions? Please articulate specific standards of reliability along with any suggested AS products. How should the costs of these new ancillary services be allocated.**

Ancillary services markets, while a necessary evil to manage the physical realities of the grid, are not a very good mechanism to ensure long-term supply and demand balance. AS markets create mandatory secondary payment streams which add to the financial uncertainty that participants need to manage and give them very little means to actively manage their exposure. That being said, in a second-best world improvement in the ERS program or some kind of German-style emergency reserve market with participants excluded from normal spot markets could provide a better backstop than what exists today. There is always a risk, however, that these will kill the incentives for market participants to prudently manage their market risk.

Better measures would involve markets for new voluntary products, like multi-day markets and cap-options that inherently help market participants manage their financial risks and by so doing improve the reliability and resiliency of the grid.

- 4. Is available residential demand response adequately captured by existing retail electric provider (REP) programs? Do opportunities exist for enhanced residential load response?**

Even a cursory look at the levels of demand response in Texas, including efforts to limit 4CP charges, shows that these are well below what could be achieved. The blame is usually placed on electricity providers having little incentive to foster more effort in this realm. Prudency and penalty rules on providers might incentivize them to do more. It would also be helpful to foster and incentivize a better framework for third party entities to finance energy efficiency and capital

investments for demand response in order to sell these services to providers so they can better meet their obligations to customers.

**5. How can ERCOT's emergency response service program be modified to provide additional reliability benefits? What changes would need to be made to Commission rules and ERCOT market rules and systems to implement these program changes?**

The simplest way to modify the ERS for additional reliability benefits would be to increase the quantity of resources procured. Stricter criteria to exclude loads that might be fundamental to reliability, like gas supply equipment, would also be useful.

**6. How can the current market design be altered (e.g., by implementing new products) to provide tools to improve the ability to manage inertia, voltage support, or frequency?**

ERCOT staff are recognized as world leaders in this space. They have put forward thoughtful suggestions to the PUCT in the past, which might be worth looking at again. The transition to inverter-based generation is a complex one and should not be reduced to just inertia and voltage support, or frequency.

### **Conclusion**

EI appreciates the opportunity to provide these Comments and looks forward to working with the Commission and other interested parties on these issues. We would be happy to visit with the Commission and/or present at a work session on any aspect of these comments if that would be helpful.

Respectfully submitted,

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